What is claimed is:

1. (Currently Amended) Method for producing dimensionally accurate metal foam made of foamable, powder-metallurgically produced metal half finished product with a melting point >200° C by the steps of:

- placing foil separating material in a casting mould made of a diathermic material;
- introducing the foamable, powder-metallurgically produced metal half finished product that is foamable at a temperature above 200° C into the casting mould which is heat resistant up to the melting point of the foamable material and having an expansion coefficient on the order of graphite and yttrium oxide with the foil separating material between walls of the casting mould and the foamable material;
- closing the casting mould in a gas-tight manner;
- controlled heating of the foamable material in the casting mould under conditions producing foaming and dimensionally accurate forming of the faces of the material with the help of radiation emitters whose energy emission is controlled, and which are applied on or through the mould; and
- removing the thus formed foam product from the mould

wherein the casting mould is open on a pair of opposite sides, whereby the foamable material is introduced on one of said sides into the mould, is heated within a selected zone of the mould in said controlled manner and foamed in such a way, that it comes out on an opposite side of the mould as a continuous product in a foamed condition having the cross-sectional shape of the casting mould.

2. (Cancelled).

3. (Previously Presented) Method according to claim 1, comprising the further step of cooling off the mould in a controlled manner after heating.

4. (Cancelled).

5. (Previously Presented) Method according to claim 1, wherein the foaming takes place under a controlled gas atmosphere at a pressure up to a 5 bar.

6. (Previously Presented) Method for producing dimensionally accurate metal foam made of foamable, powder-metallurgically produced metal half finished product with a melting point >200° C by the steps of:

- introducing a material that is foamable at a temperature above 200° C into a casting mould which is heat resistant up to the melting point of the foamable material and having an expansion coefficient on the order of graphite and yttrium oxide;
- controlled heating of the foamable material in the casting mould under conditions producing foaming and dimensionally accurate forming of the faces of the material with the help of radiation emitters whose energy emission is controlled, and which are applied on or through the mould; and
- removing the thus formed foam product from the mould; and

wherein the casting mould is open at least at one side thereof.

7. (Cancelled).

8. (Previously Presented) Method according to claim 1, wherein the radiation emission of the radiation emitter is monitored by sensors and controlled according to a monitoring signal.

9. (Previously Presented) Method according to claim 1, wherein the casting mould is thin-walled, whereby at least one wall thereof has a thickness of 2 - 20 mm.

10. (Previously Presented) Method for producing dimensionally accurate metal foam made of foamable, powder-metallurgically produced metal half finished product with a melting point >200° C by the steps of:

- introducing a material that is foamable at a temperature above 200° C into a casting mould which is heat resistant up to the melting point of the foamable material and having an expansion coefficient on the order of graphite and yttrium oxide;

- controlled heating of the foamable material in the casting mould under conditions producing foaming and dimensionally accurate forming of the faces of the material with the help of radiation emitters whose energy emission is controlled, and which are applied on or through the mould; and

- removing the thus formed foam product from the mould; and

comprising the further step of supporting at least one wall of the casting mould with supports.

11. (Previously Presented) Method according to claim 10, wherein the supports are controllable and support the casting mould against a base plate having lower temperature.

12-15. (Cancelled)

16. (Previously Presented) Method according to claim 1, wherein the casting mould is thin-walled, whereby at least one wall thereof has a thickness of 1-10 mm.

17. (Previously Presented) Method according to claim 1, wherein the casting mould is thin-walled, whereby at least one wall thereof has a thickness of 2-4 mm.

18. (Cancelled).

19. (Previously Presented) Method for producing dimensionally accurate metal foam made of foamable, powder-metallurgically produced metal half finished product with a melting point >200° C by the steps of:

- introducing a material that is foamable at a temperature above 200° C into a casting mould which is heat resistant up to the melting point of the foamable material and having an expansion coefficient on the order of graphite and yttrium oxide;

- controlled heating of the foamable material in the casting mould under conditions producing foaming and dimensionally accurate forming of the faces of the material with the help of radiation emitters whose energy emission is controlled, and which are applied on or through the mould; and

- removing the thus formed foam product from the mould; and

comprising the further step using a separating agent between the semi-finished metal product and the mould surface; wherein the casting mould is open on [[both sides,]] a pair of opposite sides, whereby the foamable material is introduced on one of said sides into the mould along with the separating agent, is heated within a selected zone of the mould in said controlled manner and foamed in such a way, that it comes out on an opposite side of the mould as a continuous product in a foamed condition having the cross-sectional shape of the casting mould.

20. (Previously Presented) Method according to claim 1, wherein a graphite-containing foil is used as the foil separating material.